The Journal of Animal and Plant Sciences, 22(3 Suppl.): 2012, Page: 221-224
ISSN: 1018-7081

BUFFALO PRODUCTION AND CONSTRAINTS IN BANGLADESH

M. Saadullah

4/6, Mayakanan, Sabujbag, Dhaka 1214, Bangladesh
Corresponding author E-mail: saadullah1941@hotmail.com

ABSTRACT

Like other developing countries, systems of buffalo production vary widely in accordance with climate, soil and socio economic opportunities in Bangladesh. Buffaloes in Bangladesh can be classified into 2 categories : (I) indigenous buffaloes, found in the coastal areas and marshy land of the country, (ii) migrated buffaloes from India and Myanmar found in the sugar- cane producing belt. The migrated buffaloes from India and other areas and swamp types respectively are generally river types. of coastal areas and marshy land are swamp types. A number of crossbred between swamp and river are also found in the coastal area. Most of the farmers are rural small holders who have traditionally integrated their livestock with crop production and buffaloes are raised mainly to provide draught power in crop production. The feed resource base for these buffaloes are scavenging and consists of crop residues, household waste, tree fodder, roots and tuber, grain by-products and anything edible found in the immediate environment. The management practices adopted by buffalo raisers usually depends on the type of production in which they are involved. At the village level production is usually based on a small herd of mixed ages and sexes generally for draught and breeding purposes. In a semi-intensive production system, buffaloes are kept mainly for specific purposes, i.e., either for draught or for milk production. The low productivity is due to the genetic character of the breed and also poor quality nutrition. It is suggested that productivity of these buffaloes mainly depends on genetic improvement, good ration, good management and also climatic conditions of an area.

INTRODUCTION

In Bangladesh, like other developing countries, systems of animal production and use vary widely in accordance with climate, soil and socio economic opportunities. Traditionally small farmers are bulk producers of milk and meat. Besides, milk and meat livestock is valued for one or several of the following traits: capital, credit, traction, hides and skins, fuel and fertilizer. The systems of production are in contrast with simple single-product farming like beef, mutton, milk, grain etc. that are the characteristics in developed countries. The production systems are characterized by small number of animals with no or minimal inputs, low outputs and periodic destruction of animals by disease and mostly maintained under scavenging systems with little or no inputs for housing, feeding or health care. The types of cattle may be described as i. large native ii. Small native and IV. Cross breed. These native animals are well adapted to the local environmental, low quality feed resources, housing facilities and scavenging systems and the most important aspect is that their performance is also good in terms of feed efficiency. The feed resource base for these animals is scavenging and consists of crop residues, household waste, tree fodder, roots and tuber, grain by-products and anything edible found in the immediate environment The supply of produced animal protein has increased by about 1.2% annually while population grew by about 2.6% per year over the past ten years. The per capita availability of milk from cattle and buffalo is 28 g / day and there is total deficit of 8.07 MMT of milk. Meat consumption / head / day are only 10.1 gm. of which 71.7% comes from cattle and buffalo though the daily requirement is 120 g / head / day (Hossain and chowdhury, 1989). This means that the production of milk and meat must be increased at least 8 to 12 times more. The indigenous buffaloes like the indigenous cattle can not yield such high amount of milk and meat, even they are provided with optimum environment. Most of the farmers are rural small holders who have traditionally integrated their livestock with crop production. Buffaloes are raised mainly provide draught power in crop production. Family labour is available whenever needed. Throughout the South East Asian countries, farmers maintain only sufficient number of buffaloes as a source of draft power on their farms in different region of Bangladesh. Buffalo milk and meat is not accepted by all people in the country especially in the urban area. The exceptions are in coastal areas of Bangladesh where buffalo meat is equally relished like cattle meat.

The economic importance may describe as followed

Complement to crop production reduce the risk, accumulate capital (savings)

i. Provide draught power for self and neighbor and income from sale of dung as fertilizer or as fuel
ii. Satisfy cultural and custom needs
iii. Ensure social status
iv. Provide food and generate income

Livestock population and productivity: The buffaloes are reared by many races under diverse agro-climatic conditions of Bangladesh with some differences in its management practices particularly with regard to their major function in local agriculture. The buffalo husbandry practices are largely influenced by their types and their economic uses. Bangladesh possesses 23.40 million cattle heads and 0.82 million buffalo heads (FAO 1990-1996)). Cattle and Buffaloes are two important species of Bovidae family in Bangladesh. They are the main source of milk, meat and draught power. Cattle and buffaloes supply about 99% of the total milk produced in the country, 50% of the total meat sold in the market and 98% of the draught requirement of the country (BBS, 1991). The contribution of cattle and buffaloes to the total output is not static, rather varies depending upon population size and localities (Shown in Tables-1.

Table 1. Trend of Cattle and buffalo population and number of animal slaughtered from 1985 to 1995

Year	Population		Milk Production (Units)		Animal Head Slaughter	
	Cattle	Buffaloes	Cattle	Buffaloes	Beef & Veal	Buffalo Meat
1985	22,132,000	605,000	3,434,000	44,000	2,213,000	30,000
1986	22,348,000	634,000	3,469,000	49,000	2,235,000	32,000
1987	22,567,000	664,000	3,504,000	51,000	2,257,000	33,000
1988	22,789,000	698,000	3,540,000	53,000	2,279,000	35,000
1989	23,015,000	733,000	3,573,000	54,000	2,303,000	36,000
1990	23,244,000	772,000	3,615,000	54,000	2,324,000	39,000
1991	23,259,000	807,000	3,618,000	53,000	2,326,000	40,000
1992	23,480,000	832,000	3,655,000	55,000	2,348,000	42,000
1993	23,923,000	866,000	3,727,000	58,000	2,392,000	43,000
1994	24,130,000*	874,000*	3,760,000F	58,500F	2,411,000*	43,000F
1995	24,340,000*	882,000*	3,800,000	59,000	2,431,000	44,000F

Production systems: The systems of buffalo production in Bangladesh is very much similar to that of tropical cattle except in some aspects arising of its characteristic grazing and breeding behaviors and water requirements In tropics or sub-tropics, the standard of Animal husbandry practices are generally very low and farmers follow their own traditional systems of animal management and breeding. Traditional rearing of buffaloes is generally characterized by subsistence on the scarce resources of the small farm, where cash inputs are rarely allocated. Buffaloes are in Bangladesh are either indigenous or migrated from India and Myanmar. These animals have important role in the national economy and livelihoods of rural people. Productivity of these buffaloes is very and mainly used for draught purposed .Genotypes of these animal are not well characterized and need to be improved through appropriate breeding programme. The small size of the holdings is one of the characteristics of small farm systems. The actual farm size varies from country to country shown in (Table-2) (Devendra, 1993). The smallest farm size occurs in Bangladesh (<0.4 ha), while households cultivating paddy in Sri Lanka have average holding of 0.3 ha of land. In South East Asia, the average size of small farms is about 1-2 ha. A recent report from Bangladesh indicated that eighty five per cent of the small farmers fall bellow the 5 ha size land and 60% are bellow 3 ha size land (BBS, 1996). The household size ranges from 5-6 members. A central goal of the small farm is to generate minimum target income and sustainable systems. Advantages of these systems have identified as (a) efficiency of scarce resource use in small farm, (b) Reduced cost of production and dependence on purchased feeds and fodder and (c) increased self-reliance and sustainability

Types of Buffalo: Buffaloes in Bangladesh may be classified into 2 categories: (I) indigenous buffaloes found in the coastal areas and marshy land of the country, and (ii) migrated buffaloes from India and Myanmar found in the sugar- cane belt and Coxes's bazar district respectively. The migrated buffaloes from India are generally of river types, and from Myanmar, coastal areas or marshy land are of swamp types, though a number of crossbred between swamp and river types are found in the coastal area (Hussain and Chowdhury, 1989; Faruque, et al. 1985, 1990; Faruque, 1991, 1992). There are great differences within and between countries in their efficiency to convert feed into milk, meat and tractive energy. Since 96% of the world river buffalo population is found in Asia, and since Asian buffaloes are almost exclusively raised by small-holders and landless farmers, there is an opportunity to improve the standard of living of small farmers in Asia through well planned buffalo development and research programmes.

Table 2. Animal Population in and ownership in small farms (%) in some selected countries of South East and East Asia

Country	Buffaloes ('000s)	Cattle ('000s)	Goats ('000s)	Sheep ('000s)	Chicken (miln)	Ducks ('000s)	Small farm Ownership %
Bangladesh	445	19850	7608	498	127	70000	90
Indonesia	3500	10350	1130	5750	590	29500	90
Laos	1100	865	143	-	8.0	310	95
Malaysia	190	658	315	200	148	5000	70
Myanmar	2080	9310	1040	280	24	3566	95
Philippines	2710	1677	2107	30	65	8268	80
Thailand	4743	6052	140	178	114	17300	76
Vietnam	2929	3282	300	-	81	28600	95

Feeding systems and constraints of Production: Large numbers of buffaloes are being kept by the farmers under different systems of husbandry. Now, there is tendency towards larger herd size with improved management practices. Buffalo is a part of their farming enterprises to supplement their farm income. Farmers usually produce some green fodder in their normal crop rotation or collect by cut and carrying systems from fellow land and utilize the cereal straws and by-products produced at their farm. Their feed supply is closely tied with the cropping system and available land for grazing. The bulk of the farms in these cereal dominated regions are engaged in arable farming and animal production is subsidiary to the production of staple cereals, grain legume and cash crop. The pre-occupation of farmers for a greater part of the year with diversified systems of arable farming and their lack of advance knowledge concerning animal management and improvement have prevented them to take sufficient interest in raising the productivity of their livestock. The biological productive capacity of tropical livestock, on account of these reasons, has not been fully exploited as yet. Buffaloes have number of advantages over cattle viz. utilization of low quality roughages to produce more protein and to gain more body weigh, more disease resistance and outstanding draught capacity and longer life span. These advantages are also noticed in indigenous buffalo stock of Bangladesh. Available literatures indicate that indigenous buffaloes are three times heavier than indigenous cattle. Indigenous buffalo cows produce 2 times more milk than cows, having more milk fat and total milk solid. A pair of buffalo have more draught capacity than a pair of cattle (Faruque et al., 1990; Khan, 1990; Rahman, 1991). Another notable advantage, especially in the coastal areas, is that they can survive against tidal wave.

Generally, majority of the livestock is maintained in the communal grazing land. They are allowed for grazing during the day on natural pasture, homestead forest or fellow land. Sometimes, mother cows with small calf are kept just besides the house. In terms of feeding management of livestock, most farmers practiced mixed management feeding systems. Saadullah et.al. (2000) identified the following major feeding management systems in different location of Bangladesh.

a. Cut and carry systems:
   Feeds from arable land: Weeds, crop residues, cereal by-product
   i. Feeds from natural vegetation of homestead, forestry and aquatic
b. *Grazing or tethering:* fellow or harvested land, roadside, riverside etc
c. *Kitchen waste*: Rice gruel, vegetable wastes etc
d. supplemental feeding with crop residues and farm by-products

Sources of feeds and fodder: *Feeds from arable land: The* major feed for livestock is crop residues supplemented with marginal quantities of cereal and oil seed by-products and weeds from crop fields. Virtually Bangladesh has no arable land for feed and fodder production exclusively for animals.

Feeds from non-arable land: Non-arable land contributes most of the green fodder for ruminant animals. Non-arable land at farm level is found around pond, embankments, on bunds, and around homesteads. Outside the farm, it is usually public wasteland found around Canal Rivers, roadside and railways. Using shrubs and tree leaves, tender shoot and twig as fodder especially for goats are traditional in the villages of Bangladesh. Cultivation of these shrubs and most of the trees requires no extra arable land or labour. The use of shrubs and tree fodder as livestock feed has recently been increasingly recognized (Saadullah, 1990).

Feed Resources from Agro forestry: Feed and Feed resources recognized under agro forestry systems are usually (a) Ground Vegetation (b) Cultivation of Improved Pasture (c) Agro forestry by-products and residues (c) Another factor to consider is the use of herbaceous legumes.

Aquatic Plant: Aquatic plants includes water hyacinth, dhal and other water biomass that grows naturally in the pond, canal ditches etc.

Management practices: The management practices adopted by buffalo raisers usually depends on the type of production in which they are involved. At the village level production is usually based on a small herd of mixed ages and sexes generally for draught and breeding purposes. In a semi-intensive production system, buffaloes are kept mainly for specific purposes, i.e., either for draught or for milk production. In an extensive production system, a larger herd (of about 20-40 buffaloes) is kept for either breeding or meat production (usually for sale or slaughter). In the village production systems the actual care of bovine animals is normally the responsibility of the elders and adolescent children. Buffaloes and cattle are kept within the village at night, and spend the daytime scavenging for roughage, together with other animals from the same and nearby villages. Grazing and browsing ranges over practically all village lands during the dry season, but is restricted to upland non-cropped areas during the rainy season. Animals are more difficult to herd during the crop growing season and buffaloes are said to be more difficult to herd than cattle. Usually the beast has its own wallow, but sometimes the whole village herd will lie down together in mud wallows remaining asleep or ruminating till evening. By about after noon they emerge out of their mud wallows covered with grey slime and graze on roads and other aquatic herbage till late in the evening. After this, they move to dry grounds where they remain till the day-dark. The buffaloes show their maximum activity during night period. Their breeding take place mainly during night and males may be seen wrestling with their horns and females bleating to their calves. After the main working season lasting for about 3 months from June-September, they drive into the neighboring forest or "haor" (water body area) or close to coastal area and where they remain till the end of the harvest season.

Breeding Constraints: These advantages of indigenous buffaloes, however, do not provide any encouragement and needs proper breeding programme to its productivity. The low productivity is due to the genetic characters of the breed and also supply of poor quality ration to the animals. Production mainly depends on genetic characters, good ration, good management and climatic conditions of an area Under adverse conditions; the return from these animals is uneconomic. It is obvious that improved production is not possible with the change of breed alone. Lack of efficient as well as number of artificial inseminator (AI) availability of technicians in the region and proper insemination facilities have worsen the situation.

Conclusion: In general the animals are undernourished and managed under primitive feeding and breeding conditions. Standard management practices for raising specific categories of animals e.g. work, meat or milk do not exit.

There is lack of grazing land and feeds and fodder, particularly protein-rich concentrates. Increased availability and improved the feeding value of crop residues and cereal or industrial by-products; must be achieved application of available technologies

Buffalo population has been increased more in the recent past than that of cattle population. So in future, buffaloes can be an important source of milk and meat in Bangladesh in addition to draught power, if feeding and breeding systems are improved

The sound breeding programme to improve genotype of these indigenous buffaloes through appropriate breeding policy is needed. Shortage of breeding bulls or non-availability of AI facilities in the villages also are the major problem

REFERENCES

BBS (1991), Bangladesh Bureau of Statistics, Govt. of Bangladesh, Bangladesh.

BBS, (1996). Bangladesh Bureau of Statistics, Govt. of Bangladesh, Bangladesh

Devendra, C. (1993). Sustainable Animal Production from Small Farm Systems in South -East Asia, FAO Animal Production and Health Paper 106, FAO, Rome Italy

FAO (1900) Production year book. 31 : 17 – 28, Rome, Italy

Faruque, M. O., A. Ali. and K. G. Mostafa (1985). Some observation on the livestock in the Chittagong division of Bangladesh. Livestock

Faruque, M. O. M. A. Hasnath. and N. U. Siddique (1990). Present status of buffaloes and their productivity raised by the small farers of Bangladesh. AFAS. Vol. 3 (4): 284-292.

Faruque. M. O. (1991). Performances of indigenous buffaloes in Mymensingh district of Bangladesh.

Faruque. M. O. (1992). Buffalo development in Bangladesh - Development of intermediate technologies for selective breeding of village herds. Final report of research project of NST, Dhaka.

Fao Year Book (1990-1996). Rome, Italy (*© Copyright FAO 1990-1996*)

Hussain. M. A. and A. B. Choudhury (1987). A report on formulation of livestock development strategies and programme in Bangladesh. DLS, Dhaka.

Hussen, M. S. (1990). Performances of indigenous buffaloes in Tangail district. M.Sc. thesis. Bangladesh Agricultural University, Mymensingh,

Saadullah, M. (1990). Availability and Use of Shrubs and Tree Fodder in Bangladesh. In: Shrubs and Tree Fodder for Farm Livestock. Ed. Dr. C. Devendra, IDRC, Canada.